CSE 160 Section 5 Problems

Dictionaries are data types that map keys to values. Let's create some dictionaries:

```
my_dict = {}   # empty dictionary
my_dict = dict()   # empty dictionary
my_dict = { key_1: value_1, key_2: value_2,   … key_n: value_n } # initialized
```

Below are some useful dictionary operations, try them out to better understand what they do!

Dictionary Operation	Code
Access individual elements	`my_dict[key]`
Access all keys or all values	`my_dict.keys()` returns all the keys `my_dict.values()` returns all the values
Access all key value pairs	`my_dict.items()` returns a list of (key,value) pairs
Modifying the value of a key	`my_dict[key] = new_value`
Remove an item based on key	`del my_dict[key_i]`

1. Create def `get_squares(number_list)` that accepts a list of numbers and returns a dictionary mapping each number in the list to its square.
   ex. `get_squares([1, 4, 4])` should return `{1:1, 4:16}`

   ```
   def get_squares(number_list):
   ```

2. Write def `coldest_city(city temperatures)` that takes in a dictionary and return the city (key) with the lowest temperature (value).
   Ex, `city_temperatures = {'Seattle': 36, 'Cupertino':39,'New York':57}`
   `coldest_city(city_temperatures)` returns "Seattle"

   ```
   def coldest_city(city_temperatures):
   ```

3. Write def `pokemon_types(pokemon_dict)` that takes parameter `pokemon_dict` and
   a. returns a new dictionary mapping each type of pokemon to the number of pokemon in `pokemon_dict` with that type.

      For example, when `pokemon_dict = {"pikachu": "electric", "charmander": "fire", "charizard" : "fire"}`,
      `pokemon_types(pokemon_dict)` returns `{"electric" : 1, "fire" : 2}`

   ```
   def pokemon_types(pokemon_dict):
   ```

b. Returns a new dictionary mapping each type of pokemon to the list
of pokemon with that type.

For example, when `pokemon_dict = {"pikachu": "electric",`
`"charmander": "fire", "charizard": "fire"}`
`pokemon_types(pokemon_dict)` returns `{'electric' : ['pikachu'],`
`'fire': ['charmander', 'charizard'}`

```
def pokemon_types(pokemon_dict):
```

4. Write a function `def frequency(word)` that takes a String parameter, and returns a dictionary
that maps each character in the String to its frequency. For example, `frequency("Star`
`Wars")` returns `{"S": 1, "t": 1, "a": 2, "r": 2, " ": 1, "W": 1, "s": 1}`.